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EXAMINER	
MUTSCHLER, BRIAN L	

ART UNIT	PAPER NUMBER
1753	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/901,004	YOSHIMINE ET AL.	
	Examiner	Art Unit	
	Brian L. Mutschler	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Comments

1. To clarify possible issues regarding the interpretation of the Kataoka et al. reference, the rejections have been modified to apply a similar teaching by Tourneux (U.S. Pat. No. 4,210,462). Kataoka et al. teach the use of a transparent, rigid, organic resin thin film layer **108**, as well as the use of a plurality of photovoltaic elements. However, Applicant's remarks present a question in light of the disclosed specific examples in the reference. In particular, Example 1 teaches that the transparent, rigid, organic resin thin film layer can be sprayed on. While the specific example does not limit the teachings of the entire reference to sprayed on layers, Kataoka et al. do not explicitly disclose how the resin layer is structured when a plurality of elements are used. Sprayed on resin layers would imply that each element has its own resin film formed thereon, in contrast to the instant claims which requires "a moisture-proof resin film" that "is formed so as to cover an area as large as or larger than the area of the array of the solar cells." To clarify this uncertainty in the teachings of Kataoka et al., the rejections previously set forth have been modified using a reference teaching similar transparent, rigid, organic resin thin film layers showing explicit examples of how the resin layer is structured when used with a plurality of photovoltaic elements.

2. The rejections of claims 1, 2, 5, and 7-9 under 35 U.S.C. 103 over the primary reference of Komori et al. have been overcome by Applicant's amendment. While the fiber layer with resin binder would help prevent moisture from penetrating by imposing a

physical barrier, the layer is not waterproof, using the ability to block the passage of water from one side of the layer to another as the definition of waterproof.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the resin film" in line 4. This limitation is indefinite because the limitation does not clearly identify which resin film is overlaid on the area. Claim 1 already recites a resin film, and claim 8 recites "another resin film" in line 3. Since it appears that the limitation applies to the second resin film, it is suggested that the phrase "another resin film is formed between the solar cells and the rear surface protecting layer, and the resin film is overlaid on an area" be changed to --another resin film is formed between the solar cells and the rear surface protecting layer and overlaid on an area--. The same limitation appears in claim 17. The same rejection applies to dependent claims 9 and 18.

Claim 9 recites the limitation "the wiring protruded from the resin film" in line 2. This limitation is indefinite because it is not clear which resin film the limitation is limiting. Additionally, it is suggested that the phrase "wherein the wiring protruded from"

be changed to --wherein wiring protruding from-- since the wiring protruded from the resin films has not been introduced. The same limitation appears in claim 18.

Claim 10 recites the limitation "the array of solar cells" in line 8. There is insufficient antecedent basis for this limitation in the claims. In line 2, only "a solar cell" is introduced. The singular solar cell is also recited in claim 16 and claim 17. The same applies to dependent claims 11-18.

Drawings

5. The drawings were received on October 22, 2003. These drawings are acceptable.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 10-14, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Kataoka et al. (U.S. Pat. No. 6,307,145), with evidence of physical properties provided by "Polyethylene Terephthalate (PET)" from *The Loctite Design*

Guide for Bonding Plastics, Volume 2 (pp. 50-51) and "Common Shrinkage Values" from GE Polymerland.

Regarding claim 10, Kataoka et al. disclose a solar cell having a front surface protective layer **103**, a rear surface film **105**, and a solar cell **101** and resin film **108** sealed by sealing resin **102** and **104** (fig. 1A). The resin film **108** is smaller than the front and rear surface protective layers **103** and **105** and covers an area as large as the area of the solar cell (fig. 1A). The sealing resin **102** covers all of the edges of the resin film **108** (fig. 1A).

Regarding claims 11 and 13, the rear surface protecting layer **105** can be made using polyethylene terephthalate (col. 8, line 40-42), a transparent resin that has a heat shrinkage rate of less than 1.0% (see "Polyethylene Terephthalate (PET)" from *The Loctite Design Guide for Bonding Plastics, Volume 2* (pp. 50-51)). Although not a preferred embodiment, Kataoka et al. teach that a front surface protecting member made of glass is excellent in weathering resistance and is not permeable to moisture (col. 1, lines 33-54). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994)

Regarding claim 12, the resin films **105** and **108** are resistant to thermal expansion and thermal contraction and can be cross-linked to enhance heat resistance (col. 8, lines 36-39; col. 11, lines 1-4). Resin film **105** can be made using polyethylene terephthalate (col. 8, line 40-42), which has a heat shrinkage rate less than 1.0% (see "Polyethylene Terephthalate (PET)" from *The Loctite Design Guide for Bonding Plastics,*

Volume 2 (pp. 50-51)). Resin film **108** is made of materials including acrylic resins (col. 10, lines 61-65), which have heat shrinkage rates less than 1.0% (see "Common Shrinkage Values" from GE Polymerland). (The heat shrinkage rate is an inherent property of materials.)

Regarding claims 14 and 16, the resin film covers the solar cell and is formed inside from the edge of the overlaying area of the front surface protecting layer and the rear surface protecting layer (fig. 1A).

Regarding claim 17, Kataoka et al. teach that glass, although not preferred, can be used as the front surface protecting member (col. 1, lines 33-54). The module further comprises a rear surface protecting member **107** formed of a steel sheet, and a resin film **105** formed between the solar cell **101** and the rear surface protecting layer **107**, wherein the resin film **105** covers an area larger than the solar cell and smaller than the surface protecting layers (fig. 1B; col. 8, lines 48-54). Since the resin film **105** covers an area larger than the solar cell **101**, the resin film must cover at least a portion of the wiring which must be used to make use of the power generated by the solar cell.

Since Kataoka et al. teach the limitations recited in the instant claims, the reference is deemed to be anticipatory.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-5, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kataoka et al. (U.S. Pat. No. 6,307,145) in view of Tourneux (U.S. Pat. No. 4,210,462), with evidence of physical properties provided by "Polyethylene Terephthalate (PET)" from *The Loctite Design Guide for Bonding Plastics, Volume 2* (pp. 50-51) and "Common Shrinkage Values" from GE Polymerland.

Regarding claim 1, Kataoka et al. disclose a solar cell having a front surface protective layer **103**, a rear surface film **105**, and a solar cell **101** and resin film **108** sealed by sealing resin **102** and **104** (fig. 1A). The resin film **108** is smaller than the front and rear surface protective layers **103** and **105** and as large as the area of the solar cell **101** (fig. 1A). Kataoka et al. also teach, "Another arrangement may be such that photovoltaic elements are integrated on an insulated substrate to achieve desired voltage or current" (col. 10, lines 50-54), i.e., a plurality of solar cell elements may be used on a single substrate, wherein a module made using the disclosed solar cell elements would have a resin film **108** covering the area including an array of the solar cell elements.

Regarding claims 2 and 4, the rear surface protecting layer **105** can be made using polyethylene terephthalate (col. 8, line 40-42), a transparent resin that has a heat shrinkage rate of less than 1.0% (see "Polyethylene Terephthalate (PET)" from *The Loctite Design Guide for Bonding Plastics, Volume 2* (pp. 50-51)). Although not a preferred embodiment, Kataoka et al. teach that a front surface protecting member made of glass is excellent in weathering resistance and is not permeable to moisture

(col. 1, lines 33-54). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994)

Regarding claim 3, the resin films **105** and **108** are resistant to thermal expansion and thermal contraction and can be cross-linked to enhance heat resistance (col. 8, lines 36-39; col. 11, lines 1-4). Resin film **105** can be made using polyethylene terephthalate (col. 8, line 40-42), which has a heat shrinkage rate less than 1.0% (see "Polyethylene Terephthalate (PET)" from *The Loctite Design Guide for Bonding Plastics, Volume 2* (pp. 50-51)). Resin film **108** is made of materials including acrylic resins, polyester resins, epoxy resins, and silicone resins (col. 10, lines 61-65), which have heat shrinkage rates less than 1.0% (see "Common Shrinkage Values" from GE Polymerland). (The heat shrinkage rate is an inherent property of materials.)

Regarding claims 5 and 7, the resin film covers the solar cell and is formed inside from the edge of the overlaying area of the front surface protecting layer and the rear surface protecting layer (fig. 1A).

Regarding claim 8, Kataoka et al. teach that glass, although not preferred, can be used as the front surface protecting member (col. 1, lines 33-54). The module further comprises a rear surface protecting member **107** formed of a steel sheet, and a resin film **105** formed between the solar cell **101** and the rear surface protecting layer **107**, wherein the resin film **105** covers an area larger than the solar cell and smaller than the surface protecting layers (fig. 1B; col. 8, lines 48-54). Since the resin film **105** covers an

area larger than the solar cell **101**, the resin film must cover at least a portion of the wiring which must be used to make use of the power generated by the solar cell.

The module of Kataoka et al. differs from the instant invention because Kataoka et al. do not explicitly disclose a single resin film covering an area as large or larger than the area of the array of the solar cells, as recited in claim 1. As explained above, Kataoka et al. disclose the use of a resin film covering a single solar cell and having an area smaller than that of the protecting layers, as well as the use of a plurality of solar cells. Kataoka et al. do not disclose the structure of the resin film when a plurality of solar cells is used.

Tourneux teaches a solar cell module comprising a plurality of solar cells, front and rear protecting layers, and resin film layers positioned between the front surface protecting layer and the solar cells and the rear surface protecting layer and the solar cells (figs. 3 and 4). The resin films are made materials including polyesters, epoxy resins, and silicone rubbers (col. 2, lines 58-65). As seen in Figures 3 ad 4, a single resin sheet covers an area greater than the area of the solar cell array (figs. 3 and 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the module of Kataoka et al. to use a single resin film as taught by Tourneux et al. because using a single resin film would simplify the method of manufacturing the solar cell module by not requiring the formation of an individual resin film for each of the solar cell elements.

10. Claims 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kataoka et al. (U.S. Pat. No. 6,307,145) in view of Tourneux (U.S. Pat. No. 4,210,462), as applied above to claims 1-5, 7, and 8, and further in view of Komori et al. (EP 0 829 909 A2).

Kataoka et al. and Tourneux describe a solar cell module having the limitations recited in claims 1-5, 7, and 9 of the instant invention, as explained above in section 9.

The solar cell module described by Kataoka et al. and Tourneux differs from the instant invention because they do not disclose that the resin film is at least 3 mm from the edge of the front and rear protective members, as recited in claim 6, and that protruding wiring is covered with an insulating tape, as recited in claim 9.

Regarding claim 6, Komori et al. disclose a specific example, wherein the front surface protective layer **404** was larger than the solar cell block by 90 mm on each side, the inorganic fibrous sheet **402** comprising the acrylic resin binder was larger than the cell block **401** by 5 mm on each side the insulating resin film **407** was larger than the solar cell block by 15 mm on each side, and the rear surface protective layer **408** was larger than the solar cell block by 80 mm on each side (p. 9, lines 52-54; p. 10, lines 2-13). Therefore, the inorganic fibrous sheet **402** was about 75 mm from the edges of the front and rear surface protective layers and was larger than the solar cell block **401**, and the insulating resin film **407** was about 65 mm from the edges of the front and rear surface protective layers and was larger than the solar cell block **401**. Making the inorganic sheet **402** (**102**) smaller than the other layers "prevents the formation of a moisture migration path" (p. 4, lines 3-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the resin film described by Kataoka et al. and Tourneux to fabricate the module such that the resin film is set at a distance from the edge of the protective layers as taught by Komori et al. because this improves the adhesion within the module and prevents the formation of moisture migration paths.

Regarding claim 9, Komori et al. teach the use of insulative tape **208** on a positive side terminal **206a** (p. 9, lines 11-13). Insulating electrical tape is commonly used to cover exposed wiring in electrical applications to prevent short-circuiting and also to protect against electrical shock. For example, electrical tape is extensively used by electricians and others making electrical connections because it offers a simple and efficient means of insulating exposed conductors.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the solar cell module described by Kataoka et al. and Tourneux to cover the wiring with insulating tape as taught by Komori et al. because insulating tape provides a simple and efficient means for insulating conducting members.

11. Claims 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kataoka et al. (U.S. Pat. No. 6,307,145), as applied above to claims 10-14, 16, and 17, and further in view of Komori et al. (EP 0 829 909 A2).

Kataoka et al. disclose a solar cell module having the limitations recited in claims 10-14, 16, and 17 of the instant invention, as explained above in section 7.

The solar cell module described by Kataoka et al. and Tourneux differs from the instant invention because they do not disclose that the resin film is at least 3 mm from the edge of the front and rear protective members, as recited in claim 15, and that protruding wiring is covered with an insulating tape, as recited in claim 18.

Regarding claim 15, Komori et al. disclose a specific example, wherein the front surface protective layer **404** was larger than the solar cell block by 90 mm on each side, the inorganic fibrous sheet **402** comprising the acrylic resin binder was larger than the cell block **401** by 5 mm on each side the insulating resin film **407** was larger than the solar cell block by 15 mm on each side, and the rear surface protective layer **408** was larger than the solar cell block by 80 mm on each side (p. 9, lines 52-54; p. 10, lines 2-13). Therefore, the inorganic fibrous sheet **402** was about 75 mm from the edges of the front and rear surface protective layers and was larger than the solar cell block **401**, and the insulating resin film **407** was about 65 mm from the edges of the front and rear surface protective layers and was larger than the solar cell block **401**. Making the inorganic sheet **402** (**102**) smaller than the other layers "prevents the formation of a moisture migration path" (p. 4, lines 3-14).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the resin film disclosed by Kataoka et al. to fabricate the module such that the resin film is set at a distance from the edge of the

protective layers as taught by Komori et al. because this improves the adhesion within the module and prevents the formation of moisture migration paths.

Regarding claim 9, Komori et al. teach the use of insulative tape **208** on a positive side terminal **206a** (p. 9, lines 11-13). Insulating electrical tape is commonly used to cover exposed wiring in electrical applications to prevent short-circuiting and also to protect against electrical shock. For example, electrical tape is extensively used by electricians and others making electrical connections because it offers a simple and efficient means of insulating exposed conductors.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the solar cell module described by Kataoka et al. to cover the wiring with insulating tape as taught by Komori et al. because insulating tape provides a simple and efficient means for insulating conducting members.

12. Claims 10, 14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komori et al. (EP 0 829 909 A2) in view Yamada et al. (EP 0 860 886 A2).

Regarding claim 10, Komori et al. disclose a solar cell module having a front surface protecting layer **104**, a rear surface protecting layer **107**, an inorganic fibrous sheet **102**, an adhesive **105** and an insulating resin film **106** and a solar cell **101** sealed by a sealing resin **103** (fig. 1B). The inorganic fibrous sheet **102** and the resin film **106** are smaller in size than the front and rear surface protecting layers **104** and **107** (p. 4,

lines 7-14; p. 6, lines 45-55). The inorganic fibrous sheet **102** comprises a nonwoven glass fiber cloth using an acrylic resin as a binder (p. 4, lines 22-24), i.e., the inorganic fibrous sheet **102** can be called a resin sheet or film. The sheet **102** is contacted at all edges by the sealing resin **102** (fig. 1B). The resin film **106** has "long-term durability...against thermal expansion and thermal shrinkage" (p. 6, line 50).

Komori et al. disclose a specific example comprising a cell block **401** having a plurality of solar cells (see p. 8, line 53 to p. 10, line 13), wherein the front surface protective layer **404** was larger than the solar cell block **401** by 90 mm on each side, the inorganic fibrous sheet **402** comprising the acrylic resin binder was larger than the cell block **401** by 5 mm on each side, the insulating resin film **407** was larger than the solar cell block **401** by 15 mm on each side, and the rear surface protective layer **408** was larger than the solar cell block **401** by 80 mm on each side (p. 9, lines 52-54; p. 10, lines 2-13). Therefore, the inorganic fibrous sheet **402** was about 75 mm from the edges of the front and rear surface protective layers and was larger than the solar cell block **401**, and the insulating resin film **407** was about 65 mm from the edges of the front and rear surface protective layers and was larger than the solar cell block **401**. Making the inorganic sheet **402** (**102**) smaller than the other layers "prevents the formation of a moisture migration path" (p. 4, lines 3-14).

Regarding claim 14, the insulating resin film **106** is "disposed so as not to be present at the bending portion of the substrate" and is smaller in size than the protective layers **104** and **107** (p. 6, lines 46-47; fig. 1B).

Regarding claims 17 and 18, Komori et al. further disclose the use of a glass front surface protective layer **104** and a steel sheet rear surface protective layer **107** (p. 5, line 58; p. 7, line 5). The resin film **106** extends beyond the edges of the solar cell block **101** but does not reach the edges of the surface protective layers **104** and **107** (fig. 1B). The insulating resin film **106** "ensures a sufficient electrical insulation of the electroconductive substrate" (p. 6, lines 49-50). Furthermore, Komori et al. show the use of connectors **306** connecting adjacent solar cells **301**, all encapsulated within a sealing resin **302** (fig. 3). Komori et al. also disclose the use of an insulating tape **208** on the solar cell output terminal **206a** (p. 9, lines 11-13).

The solar cell module of Komori et al. differs from the instant invention because Komori et al. do not disclose the formation of the solar cells within the sealing resin, as recited in claim 10, the use of wiring, as recited in claim 17, and the use of insulating tape covering the wiring, as recited in claim 18.

Regarding claim 10, Yamada et al. disclose the formation of a solar cell module comprising a front protective member **104**, a rear protective member **101**, a solar cell **102** and a resin insulating film **105**, wherein the solar cell **102** and resin insulating member **105** are contained within a sealing resin **103** (fig. 1). The sealing material **103** completely contains the solar cell **102** and the resin film **105** to "protect the solar cell device from stress or the like from the outside" (p. 3, lines 45-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the sealing resin of Komori et al. to completely

contain the solar cell and resin film as taught by Yamada et al. because completely enclosing the solar cell device within the sealing resin would "protect the solar cell device from stress or the like from the outside" (p. 3, lines 45-46).

Regarding claims 17 and 18, wires and connectors, such as those disclosed by Komori et al. are equivalent because they perform in exactly the same manner, i.e. conducting electricity from one device to another through the use of a thin electrically-conductive material. It is also well known to use insulating tape to cover exposed wiring in electrical applications to prevent short-circuiting and also to protect against electrical shock. For example, electrical tape is extensively used by electricians and others making electrical connections because it offers a simple and efficient means of insulating exposed conductors. Additionally, Komori et al. teach the use of insulative tape **208** on a positive side terminal **206a** (p. 9, lines 11-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the solar cell module of Komori et al. to use wiring and to cover the wiring with insulating tape because it is well known in the art of solar cells and the field of electrical devices to use wiring and insulating tape in electrical connections because it provides simple and efficient means for connecting electrical devices.

13. Claims 11 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komori et al. (EP 0 829 909 A2) in view Yamada et al. (EP 0 860 886 A2), as

applied above to claims 10, 14, 17, and 18, and further in view of Admissions of prior art made in the instant specification.

Komori et al. and Yamada et al. describe a solar cell module having the limitations recited in claims 10, 14, 17, and 18 of the instant invention, as explained above in section 12.

Regarding claim 11, Komori et al. further disclose the use of a glass front surface protective layer **104** and a resin film rear surface protective layer **107** (p. 5, line 58; p. 7, line 16).

Regarding claim 16, Komori et al. disclose a specific example, wherein the front surface protective layer **404** was larger than the solar cell block by 90 mm on each side, the inorganic fibrous sheet **402** comprising the acrylic resin binder was larger than the cell block **401** by 5 mm on each side, the insulating resin film **407** was larger than the solar cell block by 15 mm on each side, and the rear surface protective layer **408** was larger than the solar cell block by 80 mm on each side (p. 10, lines 2-13).

The solar cell module of Komori et al. and Yamada et al. differs from the instant invention because they do not disclose the use of a *transparent* resin film as the rear surface protective layer, as recited in claim 11.

In the disclosure of the instant application, it was disclosed that it is known in the art to use a solar cell module capable of receiving light from both the front and the back surfaces of the module by using a glass front surface protective layer **100** and a rear surface protective member comprising a transparent resin film **110** (p. 1, line 17 to p. 2, line 8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the solar cell module described by Komori et al. and Yamada et al. to use a transparent rear surface protective layer as disclosed in the instant application as prior art because using a transparent rear surface protective layer would allow the solar cell to absorb light through both the front and rear surfaces of the solar cell module.

Response to Arguments

14. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Mutschler whose telephone number is (571) 272-1341. The examiner can normally be reached on Monday-Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

blm
February 27, 2004

NAM NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700